

Science and Engineering Doctorate Awards: 1996

Detailed Statistical Tables

Division of Science Resources Studies
Directorate for Social, Behavioral and Economic Sciences

National Science Foundation



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Contributors

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GENERAL NOTES

The data presented in this report show trends in doctorate awards by science and engineering (S&E) field and recipient characteristics, institutions awarding doctorates, and postgraduation plans of recipients. The source of the data is the Survey of Earned Doctorates (SED).

The SED has been conducted annually for the National Science Foundation (NSF) and four other Federal agencies by the National Research Council. Information from this survey becomes part of the Doctorate Records File, which is a census of recipients of research doctorates awarded since 1920 by regionally-accredited universities and colleges. Doctoral degrees such as the Ph.D. or D. Sc. are included in these surveys, but first-professional degrees such as the J.D. or M.D. are not.

Data for the SED are collected directly from the individual doctorate recipients. The questionnaire is distributed to them through the cooperation of the Graduate Deans to persons as they are completing their doctorate. The data for a given year include all doctorates awarded in the 12-month period ending on June 30 of that year.

These tables present detailed data on (S&E) doctorates recipients, with some totals provided for broad non-S&E fields. Detailed data on non-S&E fields are published by the National Research Council and by other Federal sponsors of the Survey of Earned Doctorates. The groupings of field specialties into broad fields may differ among the sponsoring agencies according to their missions.

Approximately 93 percent of the annual cohort of doctorate recipients in 1996 responded to the questionnaire. Over the decade, though, the response rate ranged from 95 percent in 1987, then declined to 91 percent in 1989, then increased to 93 percent in 1996. Note that most of the numbers presented are actual self-reports, as there are no adjustments for nonresponse. For the nonrespondents, partial data from public sources are added to the file for nonrespondents; therefore, complete counts are presented for conferred doctorates by field of study and sex of recipient. Although some tables present data subject to nonresponse, the estimates represent the conservative known estimate for any data item. Therefore, small changes in numbers should be interpreted with caution, as numerical trends are affected by fluctuations in response rates and declines and increases may appear greater than they may be in reality.

For further information on the survey methodology or the availability of data for S&E doctorate recipients, please contact—

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DOCTORATES EARNED IN SCIENCE AND ENGINEERING FIELDS BY RACIAL/ETHNIC MINORITIES

Graduate schools in the United States have conferred increasing numbers of doctorates in science and engineering (S&E) fields in the last 20 years. Much of this growth is due to increasing numbers of foreign citizens on temporary visas who come to the United States to earn doctorates in S&E. In 1977, they earned 18 percent of all S&E doctorates and by 1996, they accounted for 30 percent. However, there have also been increases in U.S. citizens and immigrants holding permanent residence visas earning S&E doctorates. Increases among this group have been due to growing numbers of women¹ and racial/ethnic minorities, mostly Asian-Americans.

However, the number of blacks, Hispanics, and American Indians awarded S&E doctorates also increased in the last 20 years, especially in the 5-year period from 1992-96 (Table A). Even with these increases, Blacks, Hispanics, and American Indians remain severely underrepresented among S&E doctorates recipients where they comprised less than 8 percent of the total, compared with 13 percent of S&E bachelor's degrees recipients, for example.²

Table B provides the doctoral award data for these groups in broad fields within science and engineering and non-S&E for 5-year periods from 1977-96.

Table A. Science and engineering doctorates awarded to U.S. citizens and non-U.S. citizens on permanent visas, by race/ethnicity of recipients: 1987-91 and 1992-96

Race/ethnicity	1987-91		1992-96	
	Number	Percent	Number	Percent
Total.....	74,423	100.0	88,326	100.0
Whites.....	63,501	85.3	68,853	78.0
Asians*.....	5,016	6.7	12,706	14.4
Hispanics.....	2,096	2.8	2,797	3.2
Blacks.....	1,885	2.5	2,513	2.8
American Indians.....	249	0.3	341	0.4
Unknown.....	1,676	2.3	1,116	1.3

* Chinese students who became permanent residents accounted for much of this increase, numbering 238 in 1987-91 and 5,953 in 1992-96.

NOTE: Percents may not add to total due to rounding.

SOURCE: National Science Foundation/SRS, Survey of Earned Doctorates.

¹For data on women earning S&E doctorates, see Tables 2, 3, 8 and 9.

² See NSF/SRS, *Science and Engineering Degrees, by Race/Ethnicity of Recipients: 1989-95 (forthcoming) and 1977-91 (NSF 94-306)*.

Table B. Science and engineering (S&E) doctorates awarded, by citizenship status, racial/ethnic group, and major field of study of recipients: 1977-96

Page 1 of 2

5-year period	All Fields	Science and engineering (S&E)				Non-S&E				
		Total	Natural sciences 1/	Behavioral sciences 1/	Engineering	Total	Health	Education	Humanities 2/	Professional/ other
	Total									
Total doctorates:										
1977-81.....	156,206	89,565	43,777	33,214	12,574	66,641	2,834	37,117	18,978	7,712
1982-86.....	156,928	94,030	46,690	32,458	14,882	62,898	3,546	34,615	15,966	8,771
1987-91.....	173,798	109,449	54,301	32,598	22,550	64,349	4,653	32,061	16,941	10,694
1992-96.....	203,883	130,088	64,678	36,139	29,271	73,795	6,259	33,495	21,905	12,136
	U.S. citizens and Non-U.S. citizens with permanent visas									
All races:										
1977-81.....	133,759	73,374	36,454	28,893	8,027	60,385	2,488	33,786	17,548	6,563
1982-86.....	125,721	71,232	36,557	26,895	7,780	54,489	2,922	30,569	14,095	6,903
1987-91.....	128,534	74,423	37,796	25,519	11,108	54,111	3,689	28,127	14,423	7,872
1992-96.....	151,157	88,326	44,507	28,824	14,995	62,831	4,905	30,105	18,818	9,003
American Indians/ Alaskan Natives:										
1977-81.....	367	137	54	70	13	230	7	180	34	9
1982-86.....	428	194	93	87	14	234	14	173	26	21
1987-91.....	532	249	114	107	28	283	17	195	37	34
1992-96.....	748	341	143	155	43	407	30	239	84	54
Asians/Pacific Islanders:										
1977-81.....	5,219	4,159	2,090	679	1,390	1,060	142	453	256	209
1982-86.....	5,200	3,951	2,000	663	1,288	1,249	166	518	234	331
1987-91.....	6,508	5,016	2,428	804	1,784	1,492	170	561	339	422
1992-96.....	15,333	12,706	7,284	1,649	3,773	2,627	374	823	742	688
Blacks:										
1977-81.....	5,621	1,717	497	1,135	85	3,904	96	3,059	467	282
1982-86.....	5,204	1,782	502	1,158	122	3,422	107	2,612	392	311
1987-91.....	5,059	1,885	573	1,128	184	3,174	164	2,234	384	392
1992-96.....	6,609	2,513	834	1,381	298	4,096	252	2,817	527	500
Hispanics:										
1977-81.....	2,608	1,127	432	571	124	1,481	27	793	561	100
1982-86.....	3,143	1,497	573	768	156	1,646	56	926	539	125
1987-91.....	3,799	2,096	922	916	258	1,703	68	909	579	147
1992-96.....	5,078	2,797	1,261	1,158	378	2,281	130	1,152	769	230
Whites:										
1977-81.....	113,324	62,302	31,268	25,043	5,991	51,022	2,097	27,961	15,337	5,627
1982-86.....	108,815	61,906	32,393	23,586	5,927	46,909	2,520	25,852	12,557	5,980
1987-91.....	110,215	63,501	32,881	22,104	8,516	46,714	3,225	23,911	12,820	6,758
1992-96.....	121,675	68,853	34,413	24,165	10,275	52,822	4,059	24,853	16,470	7,440
Unknown race:										
1977-81.....	6,620	3,932	2,113	1,395	424	2,688	119	1,340	893	336
1982-86.....	2,931	1,902	996	633	273	1,029	59	488	347	135
1987-91.....	2,421	1,676	878	460	338	745	45	317	264	119
1992-96.....	1,714	1,116	572	316	228	598	60	221	226	91

See explanatory information, if any, and SOURCE at end of table.

Table B. Science and engineering (S&E) doctorates awarded, by citizenship status, racial/ethnic group, and major field of study of recipients: 1977-96

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5-year period	All Fields	Science and engineering (S&E)				Non-S&E				
		Total	Natural sciences 1/	Behavioral sciences 1/	Engineering	Total	Health	Education	Humanities 2/	Professional/ other
1977-81..... 1982-86..... 1987-91..... 1992-96..... 1977-81..... 1982-86..... 1987-91..... 1992-96.....	Non-U.S. citizens with temporary visas									
	18,040	13,672	6,325	3,192	4,155	4,368	263	2,313	828	964
	24,037	18,494	8,475	3,759	6,260	5,543	433	2,708	1,036	1,366
	35,859	29,007	14,047	4,857	10,103	6,852	685	2,358	1,623	2,186
	47,711	38,522	18,842	6,260	13,420	9,189	1,182	2,615	2,560	2,832
	Unknown citizenship									
	4,407	2,519	998	1,129	392	1,888	83	1,018	602	185
	7,170	4,304	1,658	1,804	842	2,866	191	1,338	835	502
	9,405	6,019	2,458	2,222	1,339	3,386	279	1,576	895	636
	5,015	3,240	1,329	1,055	856	1,775	172	775	527	301

1/ Natural sciences are the physical, earth/atmospheric/oceanographic, mathematics, computer, biological, and agricultural sciences.
Behavioral sciences are the social sciences and psychology.

2/ Categories differ from those published by other Federal sponsors and the National Research Council in that linguistics, history of science, American studies, and archaeology are included not in humanities but in social science.

SOURCE: National Science Foundation/SRS, Survey of Earned Doctorates

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